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EXAMINER

DIBRINO, MARIANNE NMN

ART UNIT

PAPER NUMBER

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

1. Applicant's amendment filed April 10, 2008 is acknowledged and has been entered.
2. Claims 47-50, 52-54, 56, 58 and 59 read on the elected species SEQ ID NO: 2, and are presently being examined.
3. The following is a quotation of the first paragraph of 35 U.S.C. 112:
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following ground of rejection remains.

4. Claims 52, 58 and 59 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

The amendatory material that is not supported by the specification and claims as originally filed is as follows:

- A kit comprising the vector of claim 48, *i.e.*, comprising a vector comprising a nucleic acid molecule encoding an amino acid sequence consisting of a sequence selected from the group consisting of SEQ ID NO: 2, 3, 4 and 5.
- A composition comprising the nucleic acid molecule of claim 47, *i.e.*, comprising a nucleic acid molecule encoding an amino acid sequence consisting of a sequence selected from the group consisting of SEQ ID NO: 2, 3, 4 and 5.

Applicant's arguments have been fully considered, but are not persuasive.

Applicant points to support (on page 5 of Applicant's amendment filed 4/10/08) for the claim amendments in the 2004/0171796 publication of the instant application at paragraphs [0020]-[0023].

The cited disclosure at [0020]-[0023] is:

"[0020] The present invention encompasses kits comprising an agonist peptide and a vector comprising a gene encoding CEA or a recombinantly produced CEA protein. Moreover, the kit may include an immunostimulatory molecule.

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[0021] The present invention also encompasses kits comprising an antagonist peptide alone or in combination with an immunosuppressive agent.

[0022] Another object of the present invention is a pharmaceutical composition comprising one or more agonist peptides alone or in combination with an immunostimulatory molecule and a pharmaceutically acceptable carrier.

[0023] Another object of the present invention is a pharmaceutical composition comprising one or more antagonist peptides alone or in combination with an immunosuppressing agent and a pharmaceutically acceptable carrier.”

The disclosure in the instant specification is for kits comprising an agonist peptide and a vector comprising a gene encoding CEA or a recombinantly produced CEA protein and additionally an immunostimulatory molecule [0020] or to kits comprising an antagonist peptide alone or in combination with an immunosuppressive agent [0021]. The cited disclosure at [0022], [0023] is to a pharmaceutical composition comprising one or more agonist peptides alone [0022] or comprising one or more antagonist peptides alone [0023] each additionally in combination with an immunostimulatory molecule and a pharmaceutically acceptable carrier [0022]-[0023], and to an agonist peptide formulated into a pharmaceutical composition in combination with a pharmaceutically acceptable carrier.

Although the specification provides support for a kit comprising a vector comprising a gene encoding the CEA protein, the specification does not provide support for a kit comprising a vector comprising a nucleic acid molecule encoding the claimed agonist peptide that is derived from CEA (and that is not even an unaltered subsequence of the CEA protein), nor for a composition comprising a nucleic acid molecule encoding the claimed CEA agonist peptide. In addition, a “gene” is not any DNA, nor that encoding the agonist peptide.

5. Applicant’s amendment of instant claim 53 has overcome the 112, 1st paragraph, written description and enablement rejections of record in the prior Office Action mailed 1/10/08.

Applicant’s amendment of claim 53 in the amendment filed 4/10/08 has necessitated the following new ground of rejection.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 53 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

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Claim 53 is indefinite in the recitation of “a vector comprising a gene encoding CEA and an immunostimulatory molecule” because it is not clear what is meant, *i.e.*, if the kit comprises a vector that comprises a gene encoding CEA and also encoding an immunostimulatory molecule, or if the kit comprises a vector that comprises a gene encoding CEA and further comprises a protein or other immunostimulatory molecule.

8. For the purpose of prior art rejections, the filing date of the instant claims 52, 58 and 59 is deemed to be the filing date of the instant application, *i.e.* 12/3/03, as the parent applications do not support the claimed limitations of the instant application as enunciated at item #4 of this Office Action *supra*. For the purpose of prior art rejections, the filing date of the instant claims 47-50, 53, 54 and 56 is deemed to be the filing date of the 60/061,589 parent application, *i.e.*, 10/10/97.

The following grounds of rejection remain.

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 52, 58 and 59 stand rejected under 35 U.S.C. 102(b) as being anticipated by WO 00/34494 A1.

WO 00/34494 A1 teaches a vector comprising a nucleic acid sequence that encodes the amino acid sequence of a target antigenic peptide such as the CAP1-6D peptide YLSGADLNL which is SEQ ID NO: 2 of the instant claims, or said nucleic acid sequence and vector further comprises a polypeptide comprising the amino acid sequence of at least three costimulatory molecules. WO 00/34494 A1 teaches kits containing recombinant vectors comprising the said nucleic acid molecules, host cell comprising the said nucleic acid molecules and vectors comprising the said nucleic acid molecules, for example avipox, suipox, capripox, vaccinia. WO 00/34494 A1 teaches a

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kit for use in making a recombinant poxvirus comprising a bacterial plasmid vector that comprises the said nucleic acid sequence. WO 00/34494 A1 teaches compositions comprising more than one nucleic acid sequence encoding target antigens such as CEA or CAP1-6D. WO 00/34494 A1 teaches that the viral vectors comprising a tumor associated antigenic peptide may be used to stimulate an immune response *ex vivo* in autologous CD8⁺ lymphocytes before being adoptively transferred back into the cancer patient. WO 00/34494 A1 teaches that a target antigen or epitope peptide may be provided endogenously via the vector for tumors in which the antigen is expressed at low levels or absent, the providing being either *in vivo* or *ex vivo*. WO 00/34494 A1 teaches that after immunization, the efficacy of the vaccine containing the vector encoding the tumor associated antigenic peptide may be assessed by the production of immune cells that recognize the antigen as assessed by cytolytic activity or cytokine production (especially abstract, page 2 at lines 17-20, Summary of the Invention on pages 4-10, page 11 at lines 1-7, page 21 at lines 18-30, page 22, page 23 at lines 1-3, page 25 at lines 18-32, page 26, page 27, page 28 at lines 1-5, pages 45-35, pages 36 at lines 20-32, page 37 at lines 1-4 and 17-20, page 39 at lines 16-32, page 40 at lines 16-32, page 41, paragraph spanning pages 42-43, and claims.)

Applicant's arguments (of record in the amendment filed 4/10/08 on page 6) have been fully considered, but are not persuasive.

Applicant argues that since claims 52, 58 and 59 are fully supported by the present application and the disclosure of the present application in this respect is the same as the disclosure of the earliest priority application, the said claims are entitled to an effective filing date corresponding to the filing date of the earliest priority application. However, claims 52, 58 and 59 are not fully supported by the originally filed disclosure as enunciated *supra* at item #4 of this Office Action.

11. Claims 52, 58 and 59 stand rejected under 35 U.S.C. 102(e) as being anticipated by US 2004/0019195 A1.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

US 2004/0019195 A1 discloses a vector comprising a nucleic acid sequence that encodes the amino acid sequence of a target antigenic peptide such as the CAP1-6D peptide YLSGADLNL which is SEQ ID NO: 24 of US 2004/0019195 A1 and SEQ ID NO: 2 of the instant claims, or said nucleic acid sequence and vector further comprises a polypeptide comprising the amino acid sequence of at least three costimulatory molecules. US 2004/0019195 A1 discloses kits containing recombinant vectors

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comprising the said nucleic acid molecules, host cell comprising the said nucleic acid molecules and vectors comprising the said nucleic acid molecules, for example avipox, suipox, capripox, vaccinia. US 2004/0019195 A1 discloses a kit for use in making a recombinant poxvirus comprising a bacterial plasmid vector that comprises the said nucleic acid sequence. US 2004/0019195 A1 discloses compositions comprising more than one nucleic acid sequence for target antigens such as CEA and CAP1-6D (see entire document especially abstract, [0001], [[0021]-[0025], [0029], [0037], [0046], [0018], [0011], [0120]-[0121], [0123], [0125], [0138], [0141], [0146], Table 1, [0157], [0166], [0172], [0176]-[0180], and claims 18, 19, 26, 27, 35, 36 and 68-73).

Applicant's arguments (of record in the amendment filed 4/10/08 on page 6) have been fully considered, but are not persuasive.

Applicant argues that since claims 52, 58 and 59 are fully supported by the present application and the disclosure of the present application in this respect is the same as the disclosure of the earliest priority application, the said claims are entitled to an effective filing date corresponding to the filing date of the earliest priority application. However, claims 52, 58 and 59 are not fully supported by the originally filed disclosure as enunciated supra at item #4 of this Office Action.

12. Claims 52, 58 and 59 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,969,609 B1.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

U.S. Patent No. 6,969,609 B1 discloses a vector comprising a nucleic acid sequence that encodes the amino acid sequence of a target antigenic peptide such as the CAP1-6D peptide YLSGADLNL which is SEQ ID NO: 24 of U.S. Patent No. 6,969,609 B1 and SEQ ID NO: 2 of the instant claims, or said nucleic acid sequence and vector further comprises a polypeptide comprising the amino acid sequence of at least three costimulatory molecules. U.S. Patent No. 6,969,609 B1 discloses kits containing recombinant vectors comprising the said nucleic acid molecules, host cell comprising the said nucleic acid molecules and vectors comprising the said nucleic acid molecules, for example avipox, suipox, capripox, vaccinia. U.S. Patent No. 6,969,609 B1 discloses a kit for use in making a recombinant poxvirus comprising a bacterial plasmid vector that comprises the said nucleic acid sequence. U.S. Patent No. 6,969,609 B1 discloses compositions comprising more than one nucleic acid sequence encoding target antigens such as CEA or CAP1-6D. U.S. Patent No. 6,969,609 B1 discloses that the viral vectors comprising a tumor associated antigenic peptide may be used to

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stimulate an immune response *ex vivo* in autologous CD8⁺ lymphocytes before being adoptively transferred back into the cancer patient. U.S. Patent No. 6,969,609 B1 discloses that a target antigen or epitope peptide may be provided endogenously via the vector for tumors in which the antigen is expressed at low levels or absent, the providing being either *in vivo* or *ex vivo*. U.S. Patent No. 6,969,609 B1 discloses that after immunization, the efficacy of the vaccine containing the vector encoding the tumor associated antigenic peptide may be assessed by the production of immune cells that recognize the antigen as assessed by cytolytic activity or cytokine production (especially entire document especially abstract, column 1 at lines 52-67, column 2 at lines 1-67, column 5 at lines 35-42, column t at lines 7-67, column 7 at lines 1-62, column 17 at lines 27-67, column 8 at lines 1-44, column 22 at lines 32-50, column 23 at lines 5-67, column 24, column 25 at lines 1-59, paragraph spanning columns 26-27, column 27 at lines 10-67, column 28 at lines 1-44 and 55-65, claim 16).

Applicant's arguments are of record in Applicant's amendment filed 2/8/07 on page 9.

Applicant's arguments (of record in the amendment filed 4/10/08 on page 6) have been fully considered, but are not persuasive.

Applicant argues that since claims 52, 58 and 59 are fully supported by the present application and the disclosure of the present application in this respect is the same as the disclosure of the earliest priority application, the said claims are entitled to an effective filing date corresponding to the filing date of the earliest priority application. However, claims 52, 58 and 59 are not fully supported by the originally filed disclosure as enunciated *supra* at item #4 of this Office Action.

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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14. Claims 47-49, 58 and 59 stand rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 10, 18, 19, 26 and 27 of U.S. Patent No. 7,211,432 (formerly application serial no. 10/406,317). Although the conflicting claims are not identical, they are not patentably distinct from each other because the vector of instant claims 48 and 49 are nucleic acids that comprise the nucleic acid of instant claim 47, and the vector of '317 is also a nucleic acid that comprises a nucleic acid that comprises a nucleic acid sequence encoding SEQ ID NO: 2 of the instant claims (SEQ ID NO: 24 of '317). Also, although the vector of the '317 claims 10, 18, 19, 26 and 27 also comprise additional coding sequences, the said vector comprises a nucleic acid molecule that encodes SEQ ID NO: 2. Instant claim 49 is included in this rejection because the poxviruses orthopox, avipox, capripox and suipox are obvious variants of vector as evidenced by claims 11 and 14 of '317. Instant claims 58 and 59 are included in this rejection because they are encompassed by the composition recited in claim 27 of '317.

The Examiner notes Applicant's statement (on page 6 of the amendment filed 4/10/08) "Applicants will consider the filing of a terminal disclaimer over U.S. Patent 7,211,432 upon an indication of allowable subject matter in the present application," however the Examiner may not hold this rejection in abeyance. Applicants have not stated that they will file a terminal disclaimer, just that they will consider filing one. As such, Applicant's response could be held non-responsive.

15. Claims 50, 52, 54 and 56 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 10, 18, 19, 26 and 27 of U.S. Patent No. 7,211,432 (formerly application serial no. 10/406,317) as applied to claims 47-49, 58 and 59 above, and further in view of US 6,319,496 B1 and WO 91/02805 A2.

The claims 10, 18, 19, 26 and 27 of U.S. Patent No. 7,211,432 do not recite wherein the vector further comprises a nucleotide sequence encoding HLA-A2 and is comprised in a kit.

US 6,319,496 B1 discloses making suipox, avipox, capripox or orthopox viral vectors comprising a nucleic acid sequence encoding CEA or one of the CAP-1-CAP10 peptides and a host cell comprising said vector, and that HLA-A2 is the restriction element for the CAP1-CAP-10 peptides, and that tumor cells that express HLA-A2 were capable of presenting the peptides (especially column 3 at lines 1-13, column 4 at lines 45-65, abstract).

WO 91/02805 A2 teaches transfecting tumor cells with a recombinant viral vector construct that directs expression of both a tumor antigen or portion thereof and an MHC protein such as an MHC class I protein that is capable of presenting the tumor antigen or portion thereof in order to stimulate CTL in a subject animal. WO 91/02805 A2 teaches that this is advantageous in augmenting antigen presentation in tumor cells that

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have reduced levels of MHC proteins and a reduced ability to stimulate an immune response (especially Summary of the Invention on pages 5-7 (through line 29)).

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have constructed the viral vector of claims 10, 18, 19, 26 and 27 of U.S. Patent No. 7,211,432 to further comprise nucleic acid sequence encoding HLA-A2 as per the teaching of WO 91/02805 A2 of making a recombinant viral vector that directs expression of both a tumor antigen or peptide thereof and the MHC class I protein that presents it, and to have placed the said vector into a kit.

One of ordinary skill in the art at the time the invention was made would have been motivated to do this because the claim 19 of U.S. Patent No. 7,211,432 is drawn to a vector comprising nucleic acid encoding the CAP1-6D peptide analog, and US 6,319,496 B1 discloses transfecting host cells with vectors encoding CAP antigenic peptide(s), and making compositions comprising the nucleic acid molecules. One of ordinary skill in the art at the time the invention was made would have been motivated to put the resulting vector in a kit for ease of use in transforming host cells such as per the disclosure of US 6,319,496 B1 of using a vector encoding the antigenic peptide to transfect a host cell. In addition, one of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to transfect tumor cells that had down-regulated their HLA-A2 molecules to evade detection because WO 91/02805 A2 teaches making a recombinant viral vector that directs expression of both a tumor antigen or peptide thereof and the MHC class I protein that presents it in order to augment antigen presentation in tumor cells.

This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The Examiner notes Applicant's statement (on page 6 of the amendment filed 4/10/08) "Applicants will consider the filing of a terminal disclaimer over U.S. Patent 7,211,432 upon an indication of allowable subject matter in the present application," however the Examiner may not hold this rejection in abeyance.

16. Claims 47-50, 52, 54, 56, 58 and 59 are directed to an invention not patentably distinct from claims 10, 18, 19, 26 and 27 of commonly assigned U.S. Patent No. 7,211,432, as enunciated supra.

The Examiner notes Applicant's statement (on page 6 of the amendment filed 4/10/08) "Applicants will consider the filing of a terminal disclaimer over U.S. Patent 7,211,432 upon an indication of allowable subject matter in the present application," however the Examiner may not hold this rejection in abeyance.

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17. The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned U.S. Patent No. 7,211,432, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

19. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Marianne DiBrino whose telephone number is 571-272-0842. The Examiner can normally be reached on Monday, Tuesday, Thursday and Friday.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Eileen B. O'Hara, can be reached on 571-272-0878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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/G.R. Ewoldt/
Primary Examiner, Art Unit 1644